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EXAMINER	
DINH, MINH	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/751,038	BOYD ET AL.	
	Examiner	Art Unit	
	Minh Dinh	2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16-20,22-24 and 26-40* is/are rejected.

7)☒ Claim(s) *21 and 25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/3/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-14 and 16-40 have been examined.

Claim Objections

2. Claim 12 objected to because of the following informalities: "obtained by the user off" should be changed to "obtained by the user off-line". Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-7 are rejected under 35 U.S.C. 101 because they are not directed to a practical application. A practical application would be established by a useful, concrete and tangible result. The claims are directed to a method for verifying the validity of an encrypted code corresponding to figure 16 and associated text in the specification. Figure 16 shows a 7-step verification method; however, the claims recite only the first two steps (i.e., converting the base-L string to a base-2 string and decrypting the base-2 string), and are, therefore, considered an incomplete method. An incomplete method is not a useful method.

5. Claims 29 and 31-33 are rejected under 35 U.S.C. 101 because they are not directed to a practical application. A practical application would be established by a useful, concrete and tangible result. For a claim to provide a tangible result, it must be more than just a thought or a computation. Instead, it must have real world value rather than being an abstract result. With respect to claim 29, the claim is directed to a method comprising two steps: receiving a code and processing the code; however, since the result of the processing step is not utilized, the method fails to provide a tangible result. Therefore, the claim is non-statutory under 35 U.S.C. 101. Claims that are not specifically addressed are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-7, 29, 31-37 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01.

- Claim 1 is directed to a method for verifying the validity of an encrypted code corresponding to figure 16 and associated text in the specification. Figure 16 shows a 7-step verification method; however,

the claim recites only the first two steps (i.e., converting the base-L string to a base-2 string and decrypting the base-2 string). The omitted steps are the last five steps of figure 16. Claims that are not specifically addressed are rejected by virtue of their dependency.

- Claims 29 and 34 are directed to a method for offline-online management of incentive points (the preamble); however, they do not recite any step(s) for managing incentive points. Claims that are not specifically addressed are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Leason et al. (6,251,017). Leason discloses a system comprises: a main server (fig. 3, element 302) configured for providing a user with an interface for receiving a code from a user, wherein the code is obtainable by the user

of off-line and is associated with N points, wherein each point, characterized as a purchase incentive point, is redeemable and maintainable in an account for the user; and a code server (fig. 3, element 308) configured for maintaining valid codes and verifying, against the valid codes, the validity of the code received from the user, wherein the account has a balance of points capable of growing is valid such that a balance in the account for the user is increased by a predetermined number of points if the code is valid (Abstract; figures 3, 5-6, 11-12; col. 2, line 63 – col. 3, line 7; col. 5, lines 41-53; col. 7. line 7 – col. 8, line 55).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1, 5-7, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beach et al. (5,892,827) in view of Schneier ("Applied Cryptography"). Beach discloses a method for generating an authorization code, i.e., a PIN, to be printed on a coupon/award certificate and validating

the authorization code when it is redeemed by a user (Abstract; col. 11, line 12 – col. 12, line 13).

Regarding claims 1, 5 and 34, Beach discloses a method for verifying the validity of an encrypted generated in base L = 10 (10 digits from 0-9) comprising: obtaining an encrypted code fashioned as a base 10 string derived from an n-bit raw number by producing a first string through application of a checksum function to the n-bit raw number, designating an m-bit portion of the first string as an m-bit validation number, i.e., the check digit, producing a second string through combination of the m-bit validation number and the n-bit raw number, producing a third string through application of an encryption algorithm to the second string with a secret key, and converting the third string to the base L string; converting the base 10 string to a base 2 string (computers only recognize 0s and 1s); decrypting the base 2 string; and verifying the validity of the encrypted code by processing the decrypted base 2 string (fig. 3; col. 6, line 56 – col. 8, line 32). Beach discloses using a checksum function to generate the validation number. Beach does not disclose using a one-way hash function with a first secret key. Schneier discloses using a one-way hash function with a first secret key to generate a validation number, i.e., a MAC code (pages 30-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Beach method to use a one-way hash function

with a first secret key to generate the validation number, as taught by Schneier. The motivation for doing so would have been that: (i) given a hash value, it would be computationally unfeasible to find a pre-image that hashes to that value (page 30, last paragraph); and (ii) only someone with the secret key could verify the hash value (page 31, 2nd paragraph).

Regarding claims 6-7, Beach discloses that m is the least significant bit (LSB) portion of the first/second string. Beach does not disclose that m is the most significant bit (MSB) portion of the first/second string. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the encrypted code of Beach such that m is the most significant bit (MSB) portion of the first/second string. Applicant has not disclosed that assigning m to be the MSB portion of the first/second string provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with m being the least significant bit (LSB) portion of the first/second string as disclosed in the prior art because they serve the same purpose and one is just the alternative to the other. Therefore, it would have been obvious to one of ordinary skill in the art to modify Beach to obtain the invention as specified in claims 6-7.

12. Claims 2 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beach in view of Schneier as applied to claim 1 above, and further in view of "FIPS PUB 46-3 – Data Encryption Standard (DES)" (hereinafter "FIPS 46-3").

Regarding claims 2 and 10, Beach discloses encrypting and decrypting the code (fig. 3, step 50). Beach does not disclose using the DES3 algorithm. "FIPS 46-3" discloses using the DES3 algorithm, i.e., Triple DES algorithm (Section 15 – Qualifications). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Beach and Schneier to use the DES3 algorithm for encryption and decryption, as taught in "FIPS 46-3", in order to increase data security (page 5, last paragraph).

Regarding claim 11, Beach discloses that m is the least significant bit (LSB) portion of the first/second string. Beach does not disclose that m is the most significant bit (MSB) portion of the first/second string. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the encrypted code of Beach such that m is the most significant bit (MSB) portion of the first/second string. Applicant has not disclosed that assigning m to be the MSB portion of the first/second string provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected

Applicant's invention to perform equally well with m being the least significant bit (LSB) portion of the first/second string as disclosed in the prior art because they serve the same purpose and one is just the alternative to the other. Therefore, it would have been obvious to one of ordinary skill in the art to modify Beach to obtain the invention as specified in claim 11.

13. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beach in view of Schneier as applied to claim 1 above, and further in view of Krawczyk et al., "RFC 2104 – HMAC: Keyed-Hashing for Message Authentication". Schneier discloses using a keyed-hash function. Schneier does not disclose using MD5 algorithm for the keyed-hash function. Krawczyk discloses a keyed-hash function that uses MD5 algorithm (page 2, 1st paragraph; page 6, 5th paragraph). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Beach and Schneier to use the one-way hash function MD5, as taught by Krawczyk. The motivation for doing so would have been that MD5 is one of the hash functions that perform well in software and for which code is freely and widely available (page 2, 1st paragraph).

14. Claims 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beach in view of Schneier as applied to claim 34 above, and further in view of "FIPS 46-3" and Krawczyk.

Beach discloses encrypting and decrypting the code (fig. 3, step 50). Beach does not disclose using the DES3 algorithm. "FIPS 46-3" discloses using the DES3 algorithm, i.e., Triple DES algorithm and 128-bit keys (Section 15 – Qualifications). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Beach and Schneier to use the DES3 algorithm for encryption and decryption, as taught in "FIPS 46-3", in order to increase data security (page 5, last paragraph).

Schneier discloses using a keyed-hash function. Schneier does not disclose using MD5 algorithm and a 128-bit key for the keyed-hash function. Krawczyk discloses a keyed-hash function that uses MD5 algorithm and a 128-bit key (page 2, 1st paragraph; page 6, 5th paragraph; page 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Beach and Schneier to use MD5 algorithm and a 128-bit key for the keyed-hash function, as taught by Krawczyk. The motivation for doing so would have been that MD5 is one of the hash functions that perform well in software and for which code is freely and widely available (page 2, 1st paragraph).

15. Claims 8, 12, 18-20, 29-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Leason in view of Beach.

Regarding claims 8, 12, 18-20 and 29-32, Leason discloses a method for verifying the validity of a code obtained by a user from an object, comprising the steps of: receiving the code on-line from the user, the code is generated as a base L string and obtained by the user off-line from the object; converting the base L string to a base 2 string; verifying the validity of the code by processing the base 2 string; and awarding incentive points to the user if the code is valid (figures 3, 5-6, 11-12; col. 2, line 63 – col. 3, line 7; col. 5, lines 41-53; col. 6, lines 1-11). Leason does not explicitly disclose that the code is generated by providing a number portion, deriving a validation portion from the number portion, appending the validation portion to the number portion to form a string, encrypting the string, and deriving the code from the encrypted string by converting the encrypted string to base L string. However, Leason discloses utilizing a method taught by Beach for generating and verifying a validation code as claimed (Leason: col. 12, lines 9-15; Beach: fig. 3; col. 6, line 56 – col. 8, line 32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Beach method into Leason. The motivation for doing so would have been to generate validation codes that are fraud resistant and

without the need for a pre-approved database of valid validation codes (col. 5, lines 8-11).

16. Claims 9, 13-14, 16, 22 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leason in view of Beach as applied to claims 8, 12 and 30 above, and further in view of Schneier and "FIPS 46-3". Beach discloses using a checksum function to generate the validation number. Beach does not disclose using a one-way hash function with a first secret key. Schneier discloses using a one-way hash function with a first secret key to generate a validation number, i.e., a MAC code (pages 30-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Leason and Beach to use a one-way hash function with a first secret key to generate the validation number, as taught by Schneier. The motivation for doing so would have been that: (i) given a hash value, it would be computationally unfeasible to find a pre-image that hashes to that value (page 30, last paragraph); and (ii) only someone with the secret key could verify the hash value (page 31, 2nd paragraph). Beach discloses encrypting and decrypting the code (fig. 3, step 50). Beach does not disclose using the DES3 algorithm. "FIPS 46-3" discloses using the DES3 algorithm, i.e., Triple DES algorithm and 128-bit keys (Section 15 – Qualifications). It would have

been obvious to one of ordinary skill in the art at the time the invention was made to further modify the combined method of Leason and Beach to use the DES3 algorithm for encryption and decryption, as taught in "FIPS 46-3", in order to increase data security (page 5, last paragraph).

Regarding claim 16, Beach discloses that m is the least significant bit (LSB) portion of the first/second string. Beach does not disclose that m is the most significant bit (MSB) portion of the first/second string. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the encrypted code of Beach such that m is the most significant bit (MSB) portion of the first/second string. Applicant has not disclosed that assigning m to be the MSB portion of the first/second string provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with m being the least significant bit (LSB) portion of the first/second string as disclosed in the prior art because they serve the same purpose and one is just the alternative to the other. Therefore, it would have been obvious to one of ordinary skill in the art to modify Beach to obtain the invention as specified in claim 16.

17. Claims 23-24 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leason, Beach, Schneier and "FIPS 46-3" as applied to

claim 22 above, and further in view of Krawczyk. Schneier discloses using a keyed-hash function. Schneier does not disclose using MD5 algorithm and a 128-bit key for the keyed-hash function. Krawczyk discloses a keyed-hash function that uses MD5 algorithm and a 128-bit key (page 2, 1st paragraph; page 6, 5th paragraph; page 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Leason, Beach, Schneier and "FIPS 46-3" to use MD5 algorithm and a 128-bit key for the keyed-hash function, as taught by Krawczyk. The motivation for doing so would have been that MD5 one of the hash functions that perform well in software and for which code is freely and widely available (page 2, 1st paragraph).

18. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leason as applied to claim 17 above, and further in view of Beach and Schneier. Leason does not explicitly disclose that the code server includes: means for converting the submitted code from a base L string into a base 2 string S4; means for decrypting S4 using a second secret key, K2, to form a decrypted first string, S1'; means for providing a number portion, INT, from S1'; means for arranging a first secret key, K1, next to the number portion INT, to form a second string, S2'; means for applying a hash function to S2' to form a third string S3'; means for extracting a validation portion from S3'

and a validation portion from S1'; and means for determining if the code is valid by comparing the validation portion from S3' with the validation portion from S1'. Beach discloses a system for generating and verifying a validation code wherein, for verifying the validation code, the system comprises: means for converting the submitted validation code from a base L string into a base 2 string S4; means for decrypting S4 using a secret key K, to form a decrypted first string, S1'; means for providing a number portion, INT, from S1'; means for applying a checksum function to INT to form a string S3'; means for extracting a validation portion from S3' and a validation portion from S1'; and means for determining if the code is valid by comparing the validation portion from S3' with the validation portion from S1' (fig. 3; col. 6, line 56 – col. 8, line 32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Beach system for generating and verifying a validation code into Leason. The motivation for doing so would have been to generate validation codes that are fraud resistant and without the need for a pre-approved database of valid validation codes (col. 5, lines 8-11). Beach discloses using a checksum function to generate the validation number. Beach does not disclose using a one-way hash function with a first secret key. Schneier discloses applying a one-way hash function to data concatenated with a secret key to generate a validation number, i.e., a MAC code (pages 30-31). It would have been

obvious to one of ordinary skill in the art at the time the invention was made to further modify Leason system to include means for applying a one-way hash function to data concatenated with a secret key to generate a validation number, as taught by Schneier. The motivation for doing so would have been that: (i) given a hash value, it would be computationally unfeasible to find a pre-image that hashes to that value (page 30, last paragraph); and (ii) only someone with the secret key could verify the hash value (page 31, 2nd paragraph).

19. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leason in view of Beach and Schneier as applied to claim 26 above, and further in view of "FIPS 46-3" and Krawczyk.

Beach discloses encrypting and decrypting the code (fig. 3, step 50). Beach does not disclose using the DES3 algorithm. "FIPS 46-3" discloses using the DES3 algorithm, i.e., Triple DES algorithm and 128-bit keys (Section 15 – Qualifications). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Leason, Beach and Schneier to use the DES3 algorithm for encryption and decryption, as taught in "FIPS 46-3", in order to increase data security (page 5, last paragraph).

Schneier discloses using a keyed-hash function. Schneier does not disclose using MD5 algorithm and a 128-bit key for the keyed-hash function. Krawczyk discloses a keyed-hash function that uses MD5 algorithm and a 128-bit key (page 2, 1st paragraph; page 6, 5th paragraph; page 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Leason, Beach and Schneier to use MD5 algorithm and a 128-bit key for the keyed-hash function, as taught by Krawczyk. The motivation for doing so would have been that MD5 one of the hash functions that perform well in software and for which code is freely and widely available (page 2, 1st paragraph).

Leason and Beach disclose that the code is 80-bit long (i.e., 10 alphanumeric characters x 8 bits/character). Leason and Beach do not disclose that the code is 48-bit long. However, one of ordinary skill in the art would know that choosing the length for such a code is a tradeoff between code availability (i.e., the longer the code, the more code combinations are available) and system performance (i.e., higher computational/processing cost for longer codes). Since the length of the code could be varied according to the requirements of each system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined method of Leason, Beach and Schneier such that the length of the code is 48 bits in order to meet the requirements of a certain system.

Allowable Subject Matter

20. Claims 3 and 33 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101 and 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

21. Claims 21 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. Claim 37 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

23. The following is a statement of reasons for the indication of allowable subject matter. Regarding claims 3, 21, 25, 33 and 37, a 48-bit code comprising a 32-bit number and a 16-bit validation number, in combination with elements of the parent claims, has not been taught by prior art.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,791,990 to Schroeder et al.

U.S. Patent No. 6,110,044 to Stern

U.S. Patent No. 6,766,301 to Daniel et al.

U.S. Patent No. 6,987,853 to Uner

U.S. Patent No. 7,013,286 to Aggarwal et al.

U.S. Patent App. Publication No. 2002/0010627 to Lerat

U.S. Patent App. Publication No. 2002/0016737 to Izzo et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Dinh whose telephone number is 571-272-3802. The examiner can normally be reached on Mon-Fri: 10:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MD

Minh Dinh
Examiner
Art Unit 2132

5/9/07

GILBERTO BARRON JR
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100